

### **REMARKS**

In view of the foregoing amendments and remarks that follow, reconsideration and allowance of this application are respectfully requested.

Claims 18 – 32 were rejected under 35 U.S.C. 102(b) as being anticipated by Kim (US Publ. 2004/0090759). Independent claim 18 has been amended to recite “an insulating substrate composed of a hexahedron, a circuit element formed on each surface of a pair of opposed surfaces of the insulating substrate, the opposed surfaces disposed on lateral side surfaces of the insulating substrate, the lateral side surfaces being adjacent to top and bottom surfaces of the insulating substrate, the top and bottom surfaces having the largest surface areas of the insulating substrate.” Independent claim 25 has been amended to recite “the front and rear surfaces being adjacent to top and bottom surfaces of the insulating substrate, the top and bottoms surfaces having the largest surface areas of the insulating substrate.” Support for these amendments may be found at least in paragraph [0027] of the specification.

The present invention as recited in claims 18 and 25 is not disclosed in Kim. Specifically, Kim does not disclose, nor does it suggest, circuit elements formed on each surface of a pair of opposed surfaces of an insulating substrate composed of a hexahedron. Moreover, Kim also does not disclose that the opposed surfaces are disposed on lateral side surfaces of the insulating substrate, wherein the lateral side surfaces are adjacent to top and bottom surfaces that have the largest surface areas of the insulating substrate.

Kim discloses a multi-package stack module 200 comprised of multiple vertically stacked boards 240, the boards being electrically connected to form a single circuit element. As shown in Fig. 3 of Kim, the upper surface of each board 240 includes a chip 212, multiple first bump pads 244 and a redistribution pattern 243 connecting the chip 212 and the multiple first bump

pads 244. The lower surface of each board 240 includes multiple second bumps pads 245, each second bump pad being electrically connected to the redistribution pattern 243 on the upper surface through holes 246 in the board 240. The chips are positioned alternating on opposite ends of the board to laterally offset each a chip on one board from chips on vertically adjacent boards in the module stack 200. As shown in Fig 4, vertically adjacent boards are electrically connected using multiple solder balls 270. The solder balls 270 are positioned so as to connect the first bumper pads 244 on the upper surface of a lower board to the second bumper pads 245 on the lower surface of an adjacent higher board.

Kim also discloses, as shown in Fig. 5, positioning a second electrical component 380 adjacent the chip 212 on the upper surface of the highest board in the stack module 200, the whole stack forming a single circuit element.

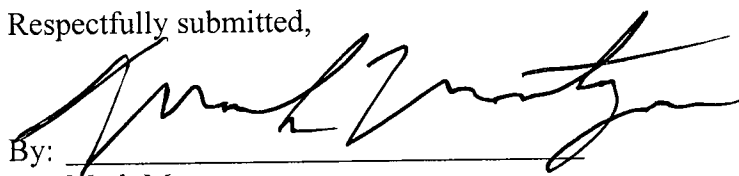
However, as is apparent from the structure recited above, the module stack precludes placement of any electrical device on the lower surface of any board in the module stack. Moreover, Kim does not disclose placing either bumper pads or a redistribution pattern that are independent of those on the upper surface on the lower surface of any board in the module stack. Therefore, Kim does not teach or suggest circuit elements formed on each surface of a pair of opposed surfaces of an insulating substrate composed of a hexahedron.

Moreover, Kim discloses that the surfaces that contain the circuit element are the surfaces with the largest surface area. Therefore, Kim does not teach or suggest placing circuit elements on opposed surfaces wherein the opposed surfaces are disposed on lateral side surfaces of the insulating substrate, the lateral side surfaces are adjacent to top and bottom surfaces of the insulating substrate and the top and bottom surfaces have the largest surface areas of the insulating substrate.

In view of the foregoing, independent claims 18 and 25, and all claims dependent thereon, are not disclosed in Kim. It is therefore requested that the rejection of claims 18-32 be withdrawn.

In light of the foregoing, reconsideration and allowance of this application are respectfully requested.

Respectfully submitted,



By: \_\_\_\_\_  
Mark Montague  
Reg. No. 36,612

COWAN, LIEBOWITZ & LATMAN, P.C  
1133 Avenue of the Americas  
New York, New York 10036-6799  
(212) 790-9200